

Claims

We claim:

1 1. A method for suppressing or inhibiting IgE production, said method comprising
2 administering an effective amount of a type I interferon, or a biologically active mutein,
3 fragment, variant or peptide thereof.

1 2. The method according to claim 1, wherein said type I interferon is selected from
2 the group consisting of IFN α , IFN β , IFN τ and IFN ω .

1 3. The method according to claim 2, wherein said type I interferon is IFN τ .

1 4. The method according to claim 1, wherein said type I interferon is a chimeric IFN
2 comprising part of at least two IFNs selected from the group consisting of IFN α , IFN β , IFN τ
3 and IFN ω .

1 5. The method according to claim 4, wherein said chimeric IFN comprises a
2 mammalian IFN τ amino terminus and a human type I IFN carboxy terminus other than IFN τ .

1 6. The method according to claim 5, wherein said mammalian IFN τ amino terminus
2 is from a mammal selected from the group consisting of primate, ovine and bovine.

1 7. The method according to claim 5, wherein said chimeric IFN comprises amino
2 acid residues from about 1 to about 27 of ovine IFN τ and amino acid residues from about 28
3 to about 166 of human IFN α .

1 8. The method according to claim 7, wherein said IFN α is IFN α D.

1 9. The method according to claim 1, wherein said type I interferon is administered
2 to a person or animal in need of suppression or inhibition of IgE production.

1 10. The method according to claim 1, wherein said suppression or inhibition of IgE
2 production occurs through inhibition of B-cell IgE secretion or inhibition of B-cell
3 proliferation.

1 11. The method according to claim 9, wherein said type I interferon is administered
2 by routes selected from the group consisting of oral administration, parenteral administration,
3 subcutaneous administration and intravenous administration.

1 12. The method according to claim 11, wherein said person or animal is afflicted
2 with, or predisposed to, an IgE-related condition.

1 13. The method according to claim 12, wherein said IgE-related condition is an
2 allergic condition selected from the group consisting of allergic rhinitis, atopic dermatitis,
3 bronchial asthma and food allergy.

1 14. The method according to claim 1, wherein said type I interferon is administered
2 *in vitro*.

1 15. The method according to claim 1, wherein said type I interferon is formulated
2 in a pharmaceutically acceptable carrier or diluent.

1 16. A composition comprising a chimeric type I interferon, or a biologically active
2 mutein, fragment, variant or peptide thereof, which is capable of suppressing or inhibiting

3 IgE production, wherein said chimeric IFN comprises part of at least two IFNs selected from
4 the group consisting of IFN α , IFN β , IFN τ and IFN ω .

1 17. The composition according to claim 16, wherein said suppression or inhibition
2 of IgE production occurs through inhibition of B-cell IgE secretion or inhibition of B-cell
3 proliferation.

1 18. The composition according to claim 16, wherein said chimeric IFN comprises
2 a mammalian IFN τ amino terminus and a human type I IFN carboxy terminus other than
3 IFN τ .

1 19. The composition according to claim 18, wherein said mammalian IFN τ amino
2 terminus is from a mammal selected from the group consisting of primate, ovine and bovine.

1 20. The composition according to claim 18, wherein said chimeric IFN comprises
2 amino acid residues from about 1 to about 27 of ovine IFN τ and amino acid residues from
3 about 28 to about 166 of human IFN α .

1 21. The composition according to claim 20, wherein said IFN α is IFN α D.

1 22. The composition according to claim 16, wherein said chimeric IFN is
2 recombinantly produced and is expressed in *Pichia pastoris*.

1 23. A polynucleotide that encodes the chimeric IFN of claim 16.

1 24. A method for suppressing or inhibiting IL-4 production, said method comprising
2 contacting an immune cell with a type I interferon, or a biologically active mutein, fragment,
3 variant or peptide thereof.